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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,465	03/15/2004	Hardayal Singh Gill	HIT1P080/HSJ920040033US1	2241

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EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/800,465	Applicant(s) GILL, HARDAYAL SINGH	
	Examiner William J. Klimowicz	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14-19 is/are rejected.
- 7) ☒ Claim(s) 10-13 and 20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

The drawings are objected to because designator **312** has no lead line in Figure 3, and the lead line in Figure 4 should direct designator **312** to the layer *between* layers **310** and **308**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

With regard to page 4, line 13, the word “every” should be changed to the word --ever--.

With regard to page 12, line 15, the word “pinning” should be changed to the word --
pinning--.

Appropriate correction is required.

Claim Objections

Claims 1 and 2 are objected to because of the following informalities:

With regard to claim 1, line 4, the phrase “track with” should be changed to the phrase --
track width--.

With regard to claim 2, line 4, the word “spacer” should be changed to the word --
coupling-- in order to remain consistent with the preceding claim language.

. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following phrase(s) lack clear antecedent basis within the claim(s), i.e., either the particularly recited passage fails to be properly introduced prior to its appearance at that point in

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the claim or the structure recited in the passage is not an inherent part of or component of the previously recited structure:

- (i) Claim 3 (line 1), "said first and second magnetic layers."
- (ii) Claim 4 (line 1), "said non-magnetic spacer layer."
- (iii) Claim 5 (line 2-3), "said first and second magnetic layers."
- (iv) Claim 5 (line 3), "said free layer."
- (v) Claim 6 (line 2), "said free layer."
- (vi) Claim 7 (line 1), "said first and second magnetic layers."
- (vii) Claim 8 (line 2), "said first and second magnetic layers."

Additionally, since claim 2 depends directly from claim 1, it too is thus rejected under the second paragraph of 35 U.S.C. § 112.

With regard to claim 1, the phrase "and an in stack bias layer having a portion formed within said track with and first and second outer portions extending laterally outward beyond said track width" is misdescriptive with respect to the invention as set forth in the Applicant's specification and drawings. More concretely, each of the three embodiments depicted in Figures 3-5, respectively, and as described in the specification, set forth a stack bias layer **332** that lies within the track width. It is a bias *pinning* layer **336** (Figs. 3 and 5) or **402** (Fig. 4) that includes first and second outer portions extending laterally outward beyond the track width. Thus, the scope of claim 1 and claims that depend therefrom, are unascertainable with regard to the invention as articulately described in the Applicant's specification and drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 9 and 17-19 are rejected under 35 U.S.C. 102(e or a) as being anticipated by
Carey et al. (US 2003/0206382 A1)

As far as claim 1 can be understood in light of the Applicant's disclosure, Carey et al. (US 2003/0206382 A1) discloses a magnetic head comprising: a magnetoresistive sensor (226) having first and second laterally opposed sides (abutting (228)) defining a track width; and an in stack bias layer (230) having a portion (over (214)) formed within said track width and first and second outer portions (over (216)) extending laterally outward beyond said track width.

Additionally, as per claim 9, Carey et al. (US 2003/0206382 A1) discloses a current in plane magnetoresistive sensor (CIP - 226 or 602), comprising: a magnetic free layer (212 or 614) having a magnetization (designated by arrow) biased parallel to an air bearing surface (ABS); a magnetic pinned layer (208 or 618) having a magnetization (designated by x within circle) pinned perpendicular to said ABS; a non-magnetic spacer layer (210 or 616) disposed between said free layer (212/614) and said pinned layer (208/618); said free layer (212/614), pinned layer (208/618), and spacer layer (210/616) having first and second laterally opposed

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sides defining a track width (abutting 228 or 622,623); a magnetic bias layer (220 or 612) formed adjacent said free layer (212/614) within said track width (over (214) or (604)); a bias pinning layer (222 or 610) formed adjacent said bias layer (220/612) opposite said free layer (212, 614) within said track width, said bias pinning layer (222 or 610) extending laterally outward substantially beyond said track width - see FIG. 2 or 6B.

As per claim 17, further comprising first and second electrically insulating side walls (622, 623 or 538, 522) *formed at* said first and second sides defined by said free layer, said pinned layer, and said spacer layer - see FIG. 5J and /or 6B).

As per claim 18, wherein said first and second electrically insulating side walls (insulating layers) comprise alumina (Al_2O_3). See paragraphs [0041-0043].

As per claim 19, further comprising at least one magnetic shield (202 or 502) having first and side shielding portions extending into a sensor stack height region, and being formed adjacent a portion of said electrically insulating side walls (522/538) and extending laterally outward therefrom.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. (US 2003/0206382 A1).

See the description of Carey et al. (US 2003/0206382 A1), *supra*.

As per claim 14, although Carey et al. (US 2003/0206382 A1) does not expressly depict a seed layer (Cr as per claim 15, with a prescribed thickness of 20 to 40 angstroms as per claim 16) formed adjacent said bias pinning layer opposite said bias layer (e.g., in embodiments of FIG. 2 or 6B), Official notice is taken that seed layers used in the type of analogous sensor disclosed by Carey et al. (US 2003/0206382 A1), are notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a seed layer (Cr as per claim 15, with a prescribed thickness of 20 to 40 angstroms as per claim 16) formed adjacent said bias pinning layer opposite said bias layer of Carey et al. (US 2003/0206382 A1), as is known in the art

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide a seed layer formed adjacent said bias pinning layer opposite said bias layer of Carey et al. (US 2003/0206382 A1) (Cr as per claim 15, with a prescribed thickness of 20 to 40 angstroms as per claim 16), as is known in the art in order to improve the grain size and crystallographic structure of subsequently deposited layers, as is well known, established and appreciated in the art.

Additionally, as it pertains to claim 16, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

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It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Allowable Subject Matter

Claims 10-13 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

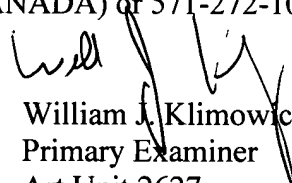
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (571) 272-7577. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


William J. Klimowicz
Primary Examiner
Art Unit 2627

WJK